

A CONFIGURABLE BI-DIRECTIONAL BUS FOR COMMUNICATING
BETWEEN AUTONOMOUS UNITS

ABSTRACT OF THE DISCLOSURE

5 Processing units (PUs) are coupled with a gated bi-directional bus structure
that allows the PUs to be cascaded. Each PUn has communication logic and function
logic. Each PUn is physically coupled to two other PUs, a PUp and a PUf. The
communication logic receives Link Out data from a PUp and sends Link In data to a
PUf. The communication logic has register bits for enabling and disabling the data
transmission. The communication logic couples the Link Out data from a PUp to the
10 function logic and couples Link In data to the PUp from the function logic in
response to the register bits. The function logic receives output data from the PUn
and Link In data from the communication logic and forms Link Out data which is
coupled to the PUf. The function logic couples Link In data from the PUf to the PUn
and to the communication logic.